

IN THE CLAIMS:

1. (Currently Amended) A spectrophotometer, comprising:
 - a light source used for emitting a light beam having a predetermined wavelength range;
 - a light guide for guiding the light beam from the said light source to a target sample;
 - a spectrometer head including:
 - a light diffractor for diffracting the light beam transmitted through the target sample to produce optical spectra,
 - a light reflector for reflecting the diffracted light from the light diffractor,
 - a light intensity measuring arrangement for measuring intensity of incident light reflected by the light reflector,
 - a drive for reciprocating the light intensity measuring arrangement within a predetermined range to at least two different positions, and
 - a stop for limiting a reciprocating movement of the light intensity measuring arrangement; and
 - a signal-processing unit used for reproducing a combined distribution of light intensities measured by the light intensity measuring arrangement of the spectrometer head at each of the two different positions.

2. (Previously Amended) The spectrometer according to claim 1, wherein said light guide comprises a multimode optical fiber.

3. (Previously Amended) The spectrometer according to claim 1, wherein said light diffractor comprises a reflective diffraction grating.

4. (Previously Amended) The spectrometer according to claim 1, wherein said light reflector comprises a concave mirror.

5. (Previously Amended) The spectrometer according to claim 1, wherein said light intensity measuring arrangement comprises a photodiode array, with a plurality of photodiodes linearly arrangement on a longitudinal mount at regular physical intervals.

6. (Previously Amended) The spectrometer according to claim 1, wherein said drive comprises a piezoelectric drive unit physically expandable or contractible in accordance with a level of applied voltage.

7. (Previously Amended) The spectrometer according to claim 1, wherein said drive comprises:

a bimorph piezoelectric drive plate physically expandable and contractible in accordance with a level of an applied voltage; and

a bimorph piezoelectric fixing plate cemented together with said bimorph piezoelectric drive plate, said bimorph piezoelectric fixing plate being physically expandable and contractible in accordance with the level of the applied voltage.

8. (Previously Amended) The spectrometer according to claim 1, wherein said stop comprises two stoppers arranged at predetermined positions around opposite ends of the light intensity measuring arrangement of the spectrometer head in a moving direction of said light intensity measuring arrangement so as to limit reciprocating movement of the light intensity measuring arrangement.

9. (Previously Amended) The spectrometer according to claim 6, wherein a displacement amplifier is attached to said piezoelectric drive unit for amplifying a displacement of the piezoelectric drive unit.

10. (Original) The spectrometer according to claim 7, wherein said bimorph piezoelectric drive plate and said bimorph piezoelectric fixing plate cemented together are different from each other in their coefficients of expansion and coefficients of contraction in response to an applied voltage.

11. (Currently Amended) A spectrophotometry method using a spectrophotometer with a drive, comprising the steps of:

a light transmitting step of guiding a light beam from a light source to a target sample through a multimode optical fiber so as to allow the light beam to be partially transmitted through said sample;

a light diffraction step of receiving the light beam, transmitted through said sample, into a reflective diffraction grating, thus diffracting the light beam into discrete wavelengths to produce optical spectra;

a light reflection step of reflecting the optical spectra of the diffracted light beam by a concave mirror to a photodiode array;

a first intensity measurement step of measuring light intensities of the incident optical spectra by the photodiode array at a first position;

a second intensity measurement step of moving the photodiode array using a the drive by a distance equal to a the physical interval between photodiodes of said photodiode array to a second position; and

repeating the steps of light transmitting, light diffraction and a light reflection;

a second intensity measurement step of measuring light intensities of the incident optical spectra by the photodiode array at desired positions corresponding to said intervals at the second position; and

an intensity distribution reproduction step of transmitting spectrometric analysis data, obtained at the first and second intensity measurement steps, from the photodiode array to a signal-processing unit, and reproducing a combined light intensity distribution of the target sample by the signal-processing unit corresponding to measured light intensities at the first and second positions.

12. (New) The spectrometer according to claim 1, wherein at least one of said two different positions is defined by said light intensity measuring arrangement against the stop.